

BREADER FOR COATING EDIBLE FOOD PRODUCTS WITH FRESH BREAD CRUMBS

In the field of large scale food preparation, a very large volume of food pieces are coated with batter and bread crumbs so that they may be cooked by deep fat frying. The food pieces are usually seafoods, poultry, red meats or vegetables. Common batters are made from corn and/or wheat flours, starches, seasonings, and gums plus water, mixed in various proportions as desired by the food processor. Bread crumbs may take many forms, but are usually a dry formulation of grain, flours, seasonings and spices. Common bread crumbs may be used in granular form, wherein granules are one-sixteenth of an inch or less in major dimension, or in flour form. Granular bread crumbs are usually termed "free flowing", because they will not pack into clumps, nor will they self-bridge over an opening slightly larger than the granules. Machines for applying such bread crumbs have been used for about three decades.

Recently, it has become desirable to use what is referred to in the art as "fresh bread" crumbs which, as the term signifies, are crumbs made from "fresh bread". In contrast to the "dry formulation" of common bread crumbs heretofore in use as referred to above, "fresh bread" crumbs usually have a substantial moisture content, thus requiring that the bread crumb coating apparatus be more gentle in its distribution and application of said crumbs to the food product to be coated. If the bread crumb apparatus operates too harshly upon the fresh bread crumbs they have a tendency to ball together to form dough balls which are undesirable as a crumb coating for food products.

The particle size of fresh bread crumbs is generally larger and somewhat pliable as compared to typical dry bread crumbs, and for this reason also the breading apparatus must be gentle in its distribution and coating so as to prevent the crumbs from being ground into smaller particle size.

FIELD OF THE INVENTION

Applying diverse edible fresh bread crumbs to surface coat a solid core of food, which has been first coated with a liquid batter.

STATE OF THE ART

In the assignee's U.S. Pat. No. 3,404,659 there is shown a drum type machine for coating articles such as donuts and the like with finely divided particles such as common powdered sugar. In this type of coating machine, a drum type conveyor carries the finely divided coating particles (powdered sugar) from an input circularly about the drum axis to several outlet hoppers for distribution and coating of the food products passing then below.

As will be fully understood in this drumtype conveyor the relative movement between the several components of the conveyor along with its associated distribution and coating apparatus results in a grinding action which tends to grind the coating material into still finer particle size.

Still another form of prior art breading machine is shown in assignee's U.S. Pat. Nos. 3,547,075 and 4,128,160, and is the type of breading machine to which the present invention relates.

In this type of breading machine a bottom layer of breading is first formed on a moving product conveyor belt onto which larger battered product pieces to be breaded are placed. The moving belt then carries the product under a falling curtain of bread crumbs which covers the top and sides of the product pieces. The moving belt may then pass under a pressure device, which may be a roller or series of rollers, which gently press the top layer of bread crumbs onto the product, the pressure also pressing the product onto and into the bottom layer of bread crumbs. Excess bread crumbs are then removed, generally with vibrators and/or air curtains, and the coated or breaded product is discharged from the breading machine.

However, this prior art breading machine typically incorporates bread crumb hopper and distribution apparatus to present and distribute the bread crumb to the moving belt and to the product, which does not satisfactorily or adequately process "fresh bread" type crumbs.

The present invention is directed particularly to a breading machine which utilizes bread crumb distribution apparatus that is especially designed to present and distribute "fresh bread" crumbs or breading to completely cover battered food products in such a gentle manner as to avoid any appreciable deterioration to said crumbs or breading.

SUMMARY OF THE INVENTION

A breading machine for use with "fresh bread" type crumbs to completely and continuously coat a battered food product carried on a moving conveyor belt.

Therefore a primary object of the present invention is to provide a breading machine especially designed to continuously coat battered food product with "fresh bread" type crumbs or breading and which machine includes bread crumb distribution apparatus that is operable to more gently process "fresh bread" crumbs or breading than heretofore possible.

Additional objects and advantages of the breading machine of the present invention will become apparent to one skilled in the art and upon reference to the following disclosure of a preferred embodiment wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of a breading machine incorporating the present invention;

FIG. 2 is a side view of the breading machine of FIG. 1, with the outer cover of the drum type conveyor removed to illustrate the internal construction thereof;

FIG. 3 is an isometric view of the breading machine and showing the drum type conveyor located at one side of the breading machine;

FIG. 4 is a partial isometric view looking in the direction of the arrows 4—4 in FIG. 3;

FIG. 5 is an isometric view somewhat similar to FIG. 3 but with the outer cover of the drum conveyor removed;

FIG. 6 is an isometric view looking generally toward the input end of the breading machine in the direction of the arrows 6—6 in FIG. 3;

FIG. 7 is a partial isometric view showing the cross-feed screw or auger disposed under the moving product belt and extending at its outlet end into the drum conveyor; and,

FIG. 8 is a partial isometric view looking generally in the direction of the arrows 8—8 in FIG. 5, and showing the endless conveyor belts for distributing the fresh bread crumbs or breading from the drum conveyor onto